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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/710,417	07/09/2004	Yu-Chih Cheng	PMXP0183USA	4416
27765	7590	04/30/2008		
NORTH AMERICA INTELLECTUAL PROPERTY CORPORATION P.O. BOX 506 MERRIFIELD, VA 22116			EXAMINER XIAO, KE	
			ART UNIT	PAPER NUMBER
			2629	
			NOTIFICATION DATE	DELIVERY MODE
			04/30/2008	ELECTRONIC

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

winstonhsu.uspto@gmail.com  
Patent.admin.uspto.Rcv@naipo.com  
mis.ap.uspto@naipo.com.tw

<b>Office Action Summary</b>	<b>Application No.</b> 10/710,417	<b>Applicant(s)</b> CHENG, YU-CHIH	
	<b>Examiner</b> Ke Xiao	<b>Art Unit</b> 2629	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 23 January 2008.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-5 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-5 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)                     | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____                                      |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)          | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____  | 6) <input type="checkbox"/> Other: _____                          |

## DETAILED ACTION

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

**Claims 1-5** are rejected under 35 U.S.C. 103(a) as being unpatentable over Ledbetter (US 2003/0025673) in view of Tsai (US 2003/0151594).

Regarding **Claim 1**, Ledbetter teaches a pointing device comprising:

a housing having base plate (Ledbetter, Fig. 18 and 25 base plate);

a wheel module comprising (Ledbetter, Fig. 25 element 430):

a pedestal having a swing shaft extended there through, the pedestal capable of swinging left and right about the swing shaft, the swing shaft pivotally connected to the base plate of the housing (Ledbetter, Fig. 25 element 442 and 446);

a wheel installed on the pedestal and rotatable about a rotary shaft that extends from the left of the pedestal to the right and is perpendicular to the swing shaft (Ledbetter, Fig. 25 element 442); and

a swing-sensing module installed on the housing for detecting the swing of the pedestal about the swing shaft and for generating a corresponding swing-sensing signal (Ledbetter, Fig. 25 elements 471, 473 and 474).

Ledbetter fails to teach that the wheel includes a step surface having at least one concave segment and at least one convex segment on an inner circumference of the wheel; and a step unit having a step body fixed on the pedestal and a push pad elastically connected to the step body, the push pad contacting the step surface and moving back and forth relative to the step body as a result of the push pad contacting the concave and convex segments when the wheel is rotated.

Tsai teaches a wheel including a step surface having at least one concave segment and at least one convex segment on an inner circumference of the wheel (Tsai, Fig. 7 Inner circumference of the mouse wheel); and

a step unit having a step body fixed on the pedestal and a push pad elastically connected to the step body, the push pad contacting the step surface and moving back and forth relative to the step body as a result of the push pad contacting the concave and convex segments when the wheel is rotated (Tsai, Fig. 7 element 52).

It would have been obvious to one of ordinary skill in the art at the time of the invention to add the concave/convex surfaces and step unit as taught by Tsai to the rotary wheel of Ledbetter in order to provide a tactile response to the rotation of the mouse wheel.

Regarding **Claim 2**, Ledbetter further teaches that a front end of the swing shaft is vertically fixed to the base plate of the housing and a rear end of the swing shaft is vertically free to move up and down pivoting about the front end of the swing shaft (Ledbetter, Fig. 25 element 452 and 490), the pointing device further comprising:

a click sensor installed in the housing for detecting vertical movement of the pedestal and generating a corresponding click-sensing signal (Ledbetter, Fig. 25 element 475).

Regarding **Claim 3**, Ledbetter further teaches a rotation-sensing module installed on the pedestal for detecting the rotation of the wheel about the rotary shaft and generating a corresponding rotation-sensing signal (Ledbetter, Fig. 25 element 482).

Regarding **Claim 4**, Ledbetter further teaches that an optical gate is disposed on the wheel, the optical gate having at least one light-passing area and one light-blocking area (Ledbetter, Fig. 25 element 482, Pg. 9 paragraph [0097]), the rotation-sensing module further comprising:

a light emitting element installed on one side of the pedestal for emitting a light beam (Ledbetter, Fig. 25 element 482, Pg. 9 paragraph [0097]); and

a light receiving element installed on the other side of the pedestal, wherein when the optical gate rotates with the wheel, the light-passing areas and the light-blocking areas alternately pass between the light emitting element and the light receiving element (Ledbetter, Fig. 25 element 482, Pg. 9 paragraph [0097]).

Regarding **Claim 5**, Ledbetter further teaches that the housing further comprises:  
at least one button (Ledbetter, Fig. 18 element 314); and  
at least one button sensor for detecting the press of the button and generating a corresponding button-sensing signal (Ledbetter, Fig. 18 and 25 elements 314 and 478).

***Response to Arguments***

Applicant's arguments filed January 23<sup>rd</sup>, 2008 have been fully considered but they are not persuasive.

The applicant argues that the step mechanism of Tsai is not combinable with the tile mouse wheel of Ledbetter. Firstly the applicant argues Ledbetter does not have enough room on the inside of the mouse wheel to be able to support a grooved surface as well as the step mechanism because sensing circuitry is located on the inside of the mouse wheel. The examiner respectfully disagrees. As seen in Figs. 22 and 23 of Ledbetter the inside of the mouse wheel can be hollow and there is ample room for additional features including a grooved surface as a step mechanism. Secondly the applicant argues that the step mechanism as shown by Tsai needs to connect to the base of the mouse upon which the mouse wheel is mounted and if such a mechanism was adapted to the mouse wheel of Ledbetter it would inhibit the tilt of the mouse wheel. The examiner respectfully disagrees. Tsai teaches that the mouse wheel needs to be mounted to a base. Ledbetter however teaches that the mouse wheel is mounted on a cradle which can allow for the wheel to tilt. The combination would have the step mechanism mounted to the cradle as disclosed by Ledbetter in order to allow for freedom of movement of the mouse wheel to tilt and roll.

***Conclusion***

**THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ke Xiao whose telephone number is (571)272-7776. The examiner can normally be reached on Monday through Friday from 8:30AM to 5:00PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Sumati Lefkowitz can be reached on (571) 272-3638. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Art Unit: 2629

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Sumati Lefkowitz/  
Supervisory Patent Examiner, Art Unit 2629

/Ke Xiao/  
Examiner, Art Unit 2629